

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method for the production of a biologically active prosthetic device for the reconstruction of bone tissue, comprising the following steps:

scanning a patient with CAT (Computerised Axial Tomography) ~~scan of the patient and~~
obtaining in order to obtain a three-dimensional electronic model ~~[[(1)]]~~ of ~~[[the]]~~ a part of the bone and of a bone defect ~~[[(2)]]~~ to be reconstructed;

~~creation through prototyping of a~~ on the basis of the three-dimensional electronic model,
producing prototype resin model ~~[[(3)]]~~ of ~~[[the]]~~ an area of the patient's bone involved by means
of ~~[[,]]~~ for example using the a three-dimensional stereolithographic technique;

by using the prototype resin model, forming ~~[[of]]~~ a model (4), ~~for example by means of "slip casting" forming,~~ of the patient's bone defect ~~[[(2)]]~~ to be reconstructed;

by using the model, forming ~~construction of a negative mould (5), for example using "slip casting" forming,~~ which is a negative of the patient's bone defect ~~[[(2)]]~~ to be reconstructed;
production of a ready by using the negative mould, producing a sintered ceramic semi-finished product, the dimensions and shape of the semi-finished product being slightly larger than those
of the bone defect, the sintered ceramic semi-finished product having a with controlled and interconnected porosity (30–90%) with of from 30 to 90%, said porosity having a bimodal
distribution of the pore dimensions in ~~[[the]]~~ a first range of from 0.1 ~~[[–]]~~ to 125 microns and in a
second range of from 125 ~~[[–]]~~ to 2500 microns; range;

~~the method being characterised in that the semi-finished product obtained by the previous step~~
~~has dimensions and shape nearing in excess the ones of the bone defect (2); and in that it~~
~~comprises step of mechanical~~ mechanically processing and manual manually finishing ~~[[of]]~~ the sintered semi-finished product to obtain ~~[[the]]~~ a finished ceramic product having precise dimensions and shape of the bone defect ~~[[(2)]]~~.

2. (currently amended) The method ~~for the production of a prosthetic device according to claim~~
1, characterised in that wherein the step of mechanical mechanically processing and manual manually finishing ~~[[are]]~~ is carried out by removing excess material using diamond milling cutters which turn at high speed.

3. (currently amended) ~~The method for the production of a prosthetic device according to claim 1, characterised in that wherein~~ the negative mould ~~[[5]]~~ of the patient's bone defect comprises means ~~[[8]]~~ able to detect any points of contact between the semi-finished product and the mould ~~[[5]]~~.

4. (currently amended) ~~The method for the production of a prosthetic device according to claim 3, characterised in that wherein~~ the means ~~[[8]]~~ able to detect any points of contact between the semi-finished product and the mould ~~[[5]]~~ comprise a coating of tracing paper which ~~can be~~ is coloured at points of contact.

5. (currently amended) ~~The method for the production of a prosthetic device according to claim 1, characterised in that wherein~~ the sintered ceramic semi-finished product is made from ~~material used to make it is~~ a Ca/P compound-based biologically active ceramic material.

6. (currently amended) ~~The method for the production of a prosthetic device according to claim [[1]] 5, characterised in that the material used to make the device is a wherein the Ca/P~~ compound-based biologically active ceramic material is selected from the group consisting of: stoichiometric hydroxyapatite; non-stoichiometric hydroxyapatite: carbonated hydroxyapatite (mainly of type B); hydroxyapatite enriched with magnesium or fluoride or with strontium or sodium; carbonated hydroxyapatite enriched with magnesium; hydroxyapatite/ β tricalcium phosphate in proportions of 50% - 50%, 70% - 30%, 30% - 70%; alpha-tricalcium phosphate (α TCP); beta-tricalcium phosphate (β TCP); mixtures of alpha-tricalcium phosphate (α TCP) and beta-tricalcium phosphate (β TCP), ~~the hydroxyapatite-based material which forms the subject matter of patent IT-1 307 292, and the hydroxyapatite-based material which forms the subject mater of patent EP-1 411 035 (and the corresponding application for an Italian patent BO2002A000650).~~

7. (currently amended) ~~The method for the production of a prosthetic device according to claim 1, characterised in that it comprises further comprising~~ a step of final checking ~~[[of]]~~ the ~~prosthetic device component~~ finished ceramic product, in terms of dimensions and shape, the check checking being carried out on the prototype resin model of the area of the patient's bone involved and by using the negative mould ~~(6 or 7)~~.

8. (currently amended) A biologically active prosthetic device ~~for the reconstruction of~~

reconstructing a bone tissue obtained according to the method ~~[[in]]~~ of claim 1, ~~characterised in that~~ wherein the shape and dimensions derive from a model of the area of the patient's bone involved, said model being obtained using rapid prototyping technology, ~~for example stereolithography~~; and ~~also characterised in that it~~ wherein said prosthetic device has a structure with predetermined and interconnected porosity ~~(30—90%)~~ of from 30 to 90% with bimodal distribution of the dimensions of the pores in a first range of from 0.1 to 125 ~~the 0.1—425~~ microns and in a second range of from 125 to 2500 ~~125—2500~~ microns range, wherein said prosthetic device is being made of Ca/P-based ceramic synthesis material using technologies for the impregnation/imbibition of porous supports (cellulose, polyurethane, resin), gel-casting, low pressure injection moulding.

9. (currently amended) The prosthetic device according to claim 8, ~~characterised in that it~~ wherein said prosthetic device is made of a ceramic material selected from the group consisting of: stoichiometric hydroxyapatite; non-stoichiometric hydroxyapatite~~[[:]]~~; carbonated hydroxyapatite (mainly of type B); hydroxyapatite enriched with magnesium or fluoride or with strontium or sodium; carbonated hydroxyapatite enriched with magnesium; hydroxyapatite/ β -tricalcium phosphate in proportions of 50% - 50%, 70% - 30%, 30% - 70%; alpha-tricalcium phosphate (α TCP); beta-tricalcium phosphate (β TCP); mixtures of alpha-tricalcium phosphate (α TCP) and beta-tricalcium phosphate (β TCP), ~~the hydroxyapatite-based material which forms the subject matter of patent IT-1 307 292, and the hydroxyapatite-based material which forms the subject matter of patent EP-1 411 035 (and the corresponding application for an Italian patent BO2002A000650).~~

10. (currently amended) The prosthetic device according to claim 8, ~~characterised in that it~~ wherein said prosthetic device constitutes a support (scaffold) for the attachment of attaching cells and/or growth factors in order to create an osteoinductive effect and/or a support for "drug release" with which drugs and/or chemotherapeutic substances may be associated in medical or oncological therapies.